FELM

Electric Motors - www.felm.it

NEMA PREMIUM EFFICENCY
IEC UL Safety Certificate

CC N. 356B

CERTIFICATE OF COMPLIANCE

Certificate Number	E481791
Report Reference	E481791-20210430
Issue Date	2021-APRIL-30
Issued to:	FELM srl Via MorandiInverunoITMIIT20001
This certificate confirms that representative samples of	Motors for Appliance Applications - Component See Addendum Page
	Have been investigated by UL in accordance with the component requirements in the Standard(s) indicated on this Certificate. UL Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for installation in complete equipment submitted for investigation to UL LLC.
Standard(s) for Safety:	UL 1004-1- Standards for Rotating Electrical Machines - General Requirements. CSA C22.2 No. 100-14- Standard for Motors and generato
Additional Information:	See the https://ic

This *Certificate of Compliance* does not provide
the UL Follow-Up Services Procedure provides a

Only those products bearing the UL Recognized
and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on

Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of
contact a local UL Customer Service Representative at http://ul.com/aboutul/locations/

CERTIFICATE OF COMPLIANCE

Certificate Number	E481791
Report Reference	E481791-20210430
Issue Date	2021-APRIL-30

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

-80G-2 ,-80G-4 ,***-80K-2 ,***-90L-2 ,***-90L-4 ,***-90L-6 ,***-90S-2 ,***-90S-4 ,***-90S-6 ,***-100L-2 ,***-100L-4 ,***-100L-6 ,***-100LX-4 ,***-112M-2 ,***-112M-4 ,***-112M-6 ,***-132M-4 ,***-132M-6 ,***-132MX-6 ,***-132S-2 ,***-132S-4 ,***-132S-6 ,***-132SX-2 ,***-160L-2 ,***-160L-4 ,***-160L-6 ,***-160LX-2 ,***-160LX-4 ,***-160LX-6 ,***-160LY-2 ,***-180L-4 ,***-180L-6 ,***-180M-2 ,***-180M-4 ,***-200L-2 ,***-200L-4 ,***-200L-6 ,***-200LX-2 ,***-200LX-6 ,***-225M-2 ,***-225M-4 ,***-225M-6 ,***-225S-4 ,***-250M-2 ,***-250M-4 ,***-250M-6 ,***-280M-2 ,***-280M-4 ,***-280M-6 ,***-280S-2 ,***-280S-4 ,***-280S-6 ,***-315L-2 ,***-315L-4 ,***-315L-6 ,***-315LX-2 ,***-315LX-4 ,***-315LX-6 ,***-315M-2 ,***-315M-4 ,***-315M-6 ,***-315S-2 ,***-315S-4 ,***-315S-6 ,***-355L-2 ,***-355L-4 ,***-355L-6 ,***-355LX-2 ,***-355LX-4 ,***-355LX-6 ,***-355LY-2 ,***-355LY-4 ,***-355LY-6 ,***-355M-2 ,***-355M-4 ,***-355M-6 ,***-355MX-6 ,***-355MY-6 ,***-400M-2 ,***-400M-4 ,***-400M-6.

****143T-2 ,****143T-4 ,****145T-2 ,****145T-4 ,****145T-6 ,****182T-2 ,****182T-4 ,****182T-6 ,****184T-2 ,****184T-4 ,****184T-6 ,****213T-2 ,****213T-4 ,****213T-6 ,****215T-2 ,****215T-4 ,****215T-6 ,****254T-2 ,****254T-4 ,****254T-6 ,****256T-2 ,****256T-4 ,****256T-6 ,****284T-4 ,****284T-6 ,****284TS-2 ,****286T-4 ,****286T-6 ,****286TS-2 ,****324T-4 ,****324T-6 ,****324TS-2 ,****326T-4 ,****326T-6 ,****326TS-2 ,****364T-4 ,****364T-6 ,****364TS-2 ,****365T-4 ,****365T-6 ,****365TS-2 ,****404T-6 ,****405T-4 ,****405T-6 ,****405TS-2 ,****444T-4 ,****444T-6 ,****444TS-2 ,****445T-4 ,****445T-6 ,****445TS-2 ,****447T-4 ,****447T-6 ,****447TS-2 ,****449T-4 ,****449T-6 ,****449TS-2 ,****504/5T-4 ,****504/5T-6 ,****586/7T-4 ,****586/7T-6 ,FWMP 400LY-4.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at http://ul.com/aboutul/locations/

FELM IEC Electric Motors

GENERAL CHARACTERISTICS

The designing, manufacturing and testing of squirrel cage induction motors made by Felm® *are in according UL NEMA electrical design*, Felm supply high quality steel frame motors with high performance and flexibility to meet the customer request. The motors are widely used in various industries of mining, pumps, compressors, wind machineries, fans ect.

UL MOTORS, F-UL Serie:

Number of Poles: 2-4-6	
Voltage: 460	
Frequency: 60	
Service factor: 1.15	
Design: Nema A & B – IEC N	
Frames: 80-355 (mm.)	(Options other frame)
Cast iron housing	(Option Aluminium)
Cooling system: IC411(Inverter use rated 1:1)	(Options IC416)
Die casting Rotor	
Shaft sealing:	O-Ring
Deep & Bake insulation	(option double impregnation VI)
Insulation class F (class B temperature rise)	
Degree of protection IP55	(Options IP56 - IP65 – IP66)
Mounting: B3	(Options B3/B5-V1-B14)
Final color: RAL 5010	(Options other types of colors)
Painting plan: C3	(Options C4-C5-Marine-Chemical-Munsell)
Internal epoxy coating	(Options tropicalization - humidity >95%)
Amb. temp.: -20°C/+40°C	(Options amb. up to 55°C)
Sintered drain plug	
Terminal box : Top	(Options right or left)
Shaft Material: C45	(Options other types of materials)
Double grounding (1 inside terminal box + 1 on the frame)	
Grease Caltex SRI-2 or SKF LGHP2	(Different types recommended by Felm)

Options:

Regreasing system
Space Heaters
PT100 windings and bearings
Transmitters
Vibration probes
Junction box
Predisposition and supply of all type of Encoder
Special shaft materials

SERIES F-UL - Technical Data @ 60Hz
Electrical part according to NEMA MG1-2014 table 12-12

Motor Type	Rated Power		Rated Speed	Efficiency	Power Factor	Current		Torque			Moment of inertia(J)	Approx WT
						FULL Load 460V	Locked Rotor	Full Load	Locked Rotor	Pull Out		
	KW	(HP)	RPM	%	φ	A	FLC	N·m	FLT	FLT	Kg-m²	Kg
F-UL 80K2	0,75	1,0	3414	77.0	0,89	1.37	7,5	2.09	2,2	2,3	0,0010	17
F-UL 80G2	1,1	1,5	3438	84.0	0,83	1.97	7,4	3.05	2,1	2,2	0,0013	18
F-UL 80G4	0,75	1,0	1692	85.5	0,75	1,46	7,3	4.23	2,3	2,3	0,0016	19
F-UL 90S2	1,5	2,0	3450	85.5	0,81	2.66	7,5	4.15	2,1	2,2	0,0015	25
F-UL 90L2	2,2	3,0	3438	86.5	0,84	3.8	7,5	6.11	2,2	2,3	0,0018	27
F-UL 90S4	1,1	1,5	1698	86.5	0,74	2,16	7,5	6.18	2,3	2,5	0,0026	35
F-UL 90L4	1,5	2,0	1704	86.5	0,77	2.83	7,6	8.04	2,4	2,5	0,0034	37
F-UL 90S6	0,75	1,0	1086	82.5	0,66	1.72	6,3	6.59	1,8	2,5	0,0031	27
F-UL 90L6	1,1	1,5	1092	87.5	0,65	2,4	6	9.61	1,8	2,5	0,0044	30
F-UL 100L4	2,2	2,9	1704	89.5	0,77	4,0	7,5	12.3	2,4	2,5	0,0054	44
F-UL 100L6	1,5	2,0	1110	88.5	0,69	3,1	6,8	12.9	2,0	2,5	0,0085	43
F-UL 112M2	3.7	5	3444	88.5	0.92	5.8	7,5	10.2	2,2	2,3	0,0065	49
F-UL 112M4	3.7	5	1734	89.5	0.83	6.3	7,6		2,4	2,5	0,0086	54
F-UL 112M6	2,2	3,0	1104	89.5	0,67	4.6	6,5	19.0	2,0	2,5	0,0133	39
F-UL 132S2	5,5	7,5	3468	89.5	0,87	8.8	7,4	15.1	2,1	2,2	0,0146	78
F-UL 132SX2	7,5	10,0	3480	90.2	0,87	11.9	7,5	20.5	2,2	2,4	0,0147	80
F-UL 132S4	5,5	7,5	1752	91.7	0,77	9.8	7,5	29.9	2,3	2,5	0,0205	73
F-UL 132M4	7,5	10,0	1760	91.7	0,79	13.0	7,7	40.6	2,4	2,5	0,0296	90
F-UL 132M6	3,7	5	1134	89.5	0.71	7.31	6,2		2,1	2,5	0,0489	125
F-UL 132MX6	5.5	7,5	1158	91.0	0,70	10.9	6	45.3	2,0	2,5	0,0585	136
F-UL 160L2	11	15,0	3522	91.0	0,89	17.0	7	29,8	2,0	2,5	0,0510	125
F-UL 160LX2	15	20	3522	91.0	0,88	23.4	7,0	40.6	1,8	2,5	0,0637	136
F-UL 160LY2	18,5	25,0	3528	91,7	0,89	28.6	7,5	50.0	2,1	2,5	0,0765	148

On demand:
0,18KW – 0,25KW – 0,37KW – 0,55KW - 3KW – 4KW : according to IE2@60Hz Nema Epact table 12-11

SERIES F-UL - Technical Data @ 60Hz
Electrical part according to NEMA MG1-2014 table 12-12

Motor Type	Rated Power		Rated Speed	Efficiency	Power Factor	Current		Torque			Moment of inertia(J)	Approx WT
						FULL Load 460V	Locked Rotor	Full Load	Locked Rotor	Pull Out		
	KW	(HP)	RPM	%	φ	A	FLC	N·m	FLT	FLT	Kg-m²	Kg
F-UL 160L4	11	15	1770	92.4	0.84	17.8	7,5	59.3	2,0	2,5	0,1068	138
F-UL 160LX4	15	20	1770	93.0	0.83	24.3	7,8	80.9	2,0	2,5	0,1287	150
F-UL 160L6	7,5	10	1164	91.0	0.73	14.1	6,5	61.5	1,8	2,5	0,1170	120
F-UL 160LX6	11	15	1164	91.7	0.75	20.1	6,7	90.2	1,9	2,5	0,1775	144
F-UL 180M2	22	30	3540	91.7	0.89	33.7	7,9	59.3	2,3	2,5	0,1170	189
F-UL 180M4	18,5	25	1758	93.6	0.79	30.8	7	100	2,0	2,5	0,1901	186
F-UL 180L4	22	30	1764	93.6	0.81	36.2	7,5	119	2,1	2,5	0,2264	206
F-UL 180L6	15	20	1176	91.7	0.77	26.5	6,5	121	1,7	2,5	0,3158	201
F-UL 200L2	30	40	3552	92.4	0.88	46.4	7,4	80.6	2,0	2,5	0,1737	242
F-UL 200LX2	37	50	3552	93.0	0.87	57.2	7,6	99.4	2,1	2,5	0,2048	270
F-UL 200L4	30	40	1764	94.1	0.81	49.1	7,2	162	2,0	2,5	0,3612	269
F-UL 200L6	18.5	25	1176	93.0	0.77	32.5	7,2	150	1,9	2,5	0,4684	243
F-UL 200LX6	22	30	1176	93.0	0.77	38.5	7,2	178	1,9	2,5	0,5483	259
F-UL 225M2	45	60	3540	93.6	0.88	68.4	7,5	121	2,0	2,5	0,3020	328
F-UL 225S4	37	50	1764	94.5	0.82	59.6	7,6	200	2,2	2,5	0,6300	314
F-UL 225M4	45	60	1776	95.0	0.83	71.4	7,8	242	2,2	2,5	0,7384	356
F-UL 225M6	30	40	1182	94.1	0.80	49.6	7,2	242	2,0	2,3	0,8842	333
F-UL 250M2	55	75	3564	93.6	0.89	82.2	7,8	147	2,2	2,5	0,4077	414
F-UL 250M4	55	75	1776	95.4	0.85	85.2	7,2	296	2,2	2,5	1,0236	473
F-UL 250M6	37	50	1182	94.1	0.83	59.6	7,4	298	2,2	2,5	1,1968	410
F-UL 280S2	75	100	3570	94.1	0.90	112.6	7,5	200	2,0	2,5	0,7988	541
F-UL 280M2	90	125	3570	95.0	0.88	135.1	7,5	240	1,9	2,5	1,0708	645
F-UL 280S4	75	100	1782	95.4	0.84	117.1	7,5	401	2,2	2,5	2,0828	620
F-UL 280M4	90	125	1788	95.4	0.85	138.1	7,5	480	2,2	2,5	2,5457	673
F-UL 280S6	45	60	1188	94.5	0.83	71.4	7,4	362	2,2	2,5	2,3382	586
F-UL 280M6	55	75	1188	94.5	0.84	87.4	7,5	442	2,2	2,5	2,7975	665
F-UL 315S2	110	150	3564	95.0	0.90	160.6	7,5	295	2,0	2,5	2,0314	900
F-UL 315L2	150	200	3564	95.4	0.85	231	7,5	400	2,2	2,5	2,4867	1160

SERIES F-UL - Technical Data @ 60Hz
Electrical part according to NEMA MG1-2014 table 12-12

Motor Type	Rated Power		Rated Speed	Efficiency	Power Factor	Current		Torque			Moment of inertia(J)	Approx WT
						FULL Load 460V	Locked Rotor	Full Load	Locked Rotor	Pull Out		
	KW	(HP)	RPM	%	φ	A	FLC	N·m	FLT	FLT	Kg-m²	Kg
F-UL 315LX2	185	250	3558	95.8	0.93	289.2	7,3	537	1,8	2,5	2,9069	1250
F-UL 355M2	220	300	3558	95.8	0.90	326	7,5	596	1,9	2,5	3,0120	1300
F-UL 355L2	260	350	3558	95.8	0.90	380	7,5	696	1,9	2,5	3,213	1336
F-UL 355LX2	330	450	3558	95.8	0.90	480	7,5	885	1,9	2,5	4,463	1750
F-UL 355LY2	375	500	3558	95.8	0.90	546	7,5	1006	1,9	2,5	4,768	1870
F-UL 315S4	110	150	1782	95.8	0.86	166.3	7,0	589	2,1	2,5	3,4904	900
F-UL 315L4	150	200	1788	96.2	0.81	241	7,5	800	2,1	2,5	5,2356	1130
F-UL 315LX4	185	250	1788	96.2	0.91	295.5	7,5	1068	2,2	2,5	5,7010	1190
F-UL 355M4	220	300	1788	96.2	0.88	332	7,5	1194	2,0	2,5	7,456	1660
F-UL 355L4	260	350	1788	96.2	0.88	387	7,5	1397	2,0	2,5	9,297	1780
F-UL 355LX4	330	450	1788	95.8	0.88	492	7,5	1763	2,0	2,5	10,286	1865
F-UL 355LY4	375	500	1788	95.8	0.88	559	7,5	2003	2,0	2,5	11,275	1900
F-UL 315S6	75	100	1188	94.5	0.82	120.3	7,4	603	2,0	2,5	4,7411	860
F-UL 315M6	90	125	1188	95.0	0.84	141.7	7,6	724	2,0	2,5	5,8225	980
F-UL 315L6	110	150	1188	95.0	0.82	176	7,7	884	2,0	2,5	6,6542	1050
F-UL 355M6	150	200	1188	95.8	0.79	248	7,5	1206	1,8	2,5	10,3863	1670
F-UL 355MX6	185	250	1188	95.8	0.84	287	7,5	1478	1,8	2,5	10,8930	1720
F-UL 355L6	220	300	1188	95.8	0.85	308.6	7,5	1675	1,8	2,5	12,4130	1820
F-UL 355LX6	260	350	1188	95.8	0.85	339	7,5	1768	1,8	2,5	13,1729	1860
F-UL 355XA6*	330	450	1188	95.8	0.85	509	7,5	2652	1,8	2,5	14,000	2410
F-UL 355XB6*	375	500	1188	95.8	0.85	579	7,5	3015	1,8	2,5	15,000	2650

On demand:
132KW – 200KW – 280KW – 315KW - 355KW: according to IE2@60Hz Nema Epact table 12-11
*F-UL 355 XA6 – 355 XB6 serie compact; check dimensions/drawings

CONTATCS

Head Quarter
FELM srl
Via Morandi (Industrial Area)
20010 Inveruno (Mi) Italy
Tel. +39 02 97 289 454
Tel. +39 02 97 288 320
Fax +39 02 97 289 923
E-mail home@felm.it

FELM Office Middle East
Jebel Ali Free Zone, Warehouse no. FZS1-BM07,
PO Box 263632, Dubai, United Arab Emirates
Office Ph. +971 (04) 887 9767
mobile +971 50 550 1322
Email: ayman.abdallah@felm.it

FELM Office Germany
Heinrich-Busold-Strasse 47
D-61169 Friedberg (Hessen), Germany
Tel (Off): +49-6031-721606
Mobile: +49-172-6729011
Fax: +49-6031-721610
Email: Jayant@jk-conrep.de

FELM Office China
Add: Room 1002,Building 3#,
No 139 Rd.SongShan,
Jianye, Nanjing, Jiangsu, China
Fax:+86-25-87797622
Tel:+86-15077829999
Email: lidongming1974@vip.sina.com

FELM Office UK
The Foundry, Wadebridge
Cornwall, PL27 7JP
United Kingdom
Tel (Off): +441208 816543
Email: sales@felm.co.uk

WORLD WIDE SERVICE
Mobile +39 355 69 53 804
E-mail service@felm.it